

Study Guide

For use with pages 47–51

GOAL Identify and plot points in a coordinate plane.

VOCABULARY

A **coordinate plane** is formed by the intersection of a horizontal number line called the **x-axis** and a vertical number line called the **y-axis**. The axes meet at a point called the **origin** and divide the coordinate plane into four **quadrants**.

Each point in a coordinate plane is represented by an **ordered pair**. The first number is the **x-coordinate**, and the second number is the **y-coordinate**.

A **scatter plot** uses a coordinate plane to display paired data.

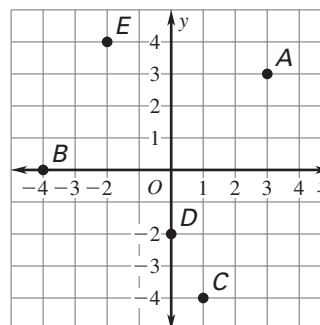
EXAMPLE 1 Naming Points in a Coordinate Plane

Give the coordinates of the point.

- a.** A **b.** B

Solution

- Point A is 3 units to the right of the origin and 3 units up. The x -coordinate is 3 and the y -coordinate is 3. The coordinates are (3, 3).
- Point B is 4 units to the left of the origin and 0 units up or down. The x -coordinate is -4 and the y -coordinate is 0. The coordinates are $(-4, 0)$.



Exercises for Example 1

Use the coordinate plane in Example 1. Give the coordinates of the point.

- 1.** *C* **2.** *D* **3.** *E*

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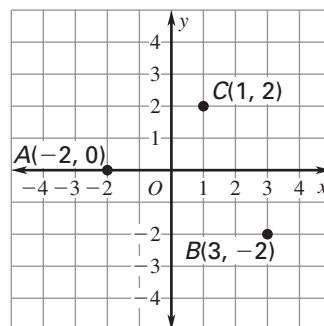
EXAMPLE 2 Plotting Points in a Coordinate Plane

Plot the point in a coordinate plane. Describe the location of the point.

- a. $A(-2, 0)$ b. $B(3, -2)$ c. $C(1, 2)$

Solution

- a. Begin at the origin and move 2 units to the left. Point A is on the x -axis.
b. Begin at the origin and move 3 units to the right, then 2 units down. Point B is in Quadrant IV.
c. Begin at the origin and move 1 unit to the right, then 2 units up. Point C is in Quadrant I.



Exercises for Example 2

Plot the point in a coordinate plane. Describe the location of the point.

4. $F(-5, -3)$ 5. $G(0, 4)$ 6. $H(-6, 2)$

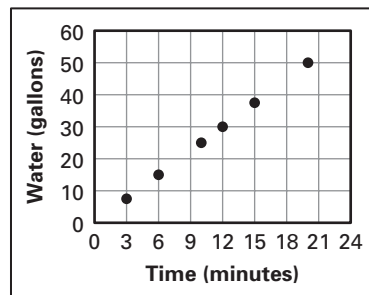
EXAMPLE 3 Making a Scatter Plot

The data in the table show the amount of water used after the given number of minutes in a shower. Make a scatter plot of the data.

Time (minutes)	3	6	10	12	15	20
Water (gallons)	7.5	15	25	30	37.5	50

Solution

- (1) Write the data as ordered pairs. Let the x -coordinate represent the time, and let the y -coordinate represent the water:
 $(3, 7.5), (6, 15), (10, 25), (12, 30), (15, 37.5), (20, 50)$
(2) Plot the ordered pairs in a coordinate plane.
You need only the first quadrant.



Exercise for Example 3

7. Describe any relationship you see in the scatter plot from Example 3.